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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/823,176	03/29/2001	Chien Ping Huang	55776	9088

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EXAMINER

GEBREMARIAM, SAMUEL A

ART UNIT PAPER NUMBER

2811

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/823,176

Applicant(s)

HUANG

Examiner

Samuel A Gebremariam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## P r i d f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## P r i r i t y under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 9 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the specification for the limitation of "temporarily linked to the supporting..." as recited in claims 1, 9 and 14.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6, 9-10 and 13 in so far in compliance of 35 U.S.C. 112 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim US patent No. 5,925,934.

Regarding claim 1 Lim teaches (figs. 10A and 1 and col. 7, line 21-26) a substrate strip, which comprises: (a) a frame (570) having a pair of parallel supporting bars including a first supporting bar and a second supporting bar (see fig. 11, (570) runs

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parallel), and (b) at least one substrate (505) supported on the supporting bars; the substrate being linked to the supporting bars by means of no more than two tie bars (530).

Furthermore Lim teaches that the tie bars (530) are as used as a support when the chip is mounted on the frame (570) (col. 7, lines 21-26). Therefore Lim inherently teaches that the tie bars are temporary structures.

Since Lim's structure is the same as the claimed structure, the limitation to allow thermally induced expansion of the substrate to be directed toward corners of the substrate free of the tie bars, and allow the substrate to be free of connection to the tie bars in a semiconductor package formed on the substrate is inherently taught by Lim.

Also the limitation to allow thermally-induced expansion of the substrate to be directed toward corners of the substrate free of the tie bars, and allow the substrate to be free of connection to the tie bars in a semiconductor package formed on the substrate is not given patentable weight because, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Regarding claim 2, Lim teaches the entire claimed structure of claim 1 above including the substrate is dedicated for BGA application.

Regarding claim 3, Lim teaches (fig. 10a) the entire claimed structure of claim 1 above including the substrate is linked to the frame by means of just two tie bars (530).

Regarding claims 9-10 Lim teaches (fig. 11, col. 7, line 21-26) the entire claimed structure of claims 1-3 above including the substrate (505) being linked to the supporting bars by means of a two-point linkage structure consisting of just two tie bars (530) linked to the supporting bars (570).

Regarding claims 4 and 5 and 11-12 Lim teaches substantially the entire claimed structure of claim 1 above including that the two tie bars are arranged on two adjacent corners of the substrate (fig. 22).

Lim does not teach that the two tie bars are arranged on diagonally opposite corners of the substrate.

A skilled artisan would readily recognize that placing support structures on a mechanical system diagonally or any two relative positions other than the mid points of opposite side of the support frame taught by Lim would provide equally good support and stability. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the two tie bars as claimed above, since placing the tie bars diagonally provides better support to the substrate.

Regarding claims 6 and 13 Lim teaches substantially the entire claimed structure of claims 1 and 9 above except explicitly stating the one tie bar is arranged on one corner of the substrate and the other is arranged on one side of the substrate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the tie bars as claimed since it has been held that

rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70.

Claims 7 and 14-16 so far in compliance of 35 U.S.C. 112 are rejected under 35 U.S.C. are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim in view of Park et al. US patent No. 5,847,446.

Regarding claim 7 Lim teaches substantially the entire claimed structure of claim 1 above except explicitly stating that the substrate is linked to the frame by means of just one tie bar.

Park teaches (col. 4 line 22-34, figs. 3-5) the possibility of using at least one tie bar (122) that is attached to the chip pad (120).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the one tie bar structure taught by Park in the structure of Lim in order to simplify the manufacturing process.

Regarding claims 14-16, Lim teaches substantially the entire claimed structure of claims 1-8 above except explicitly stating that the substrate being linked to the supporting bars by means of a one-point linkage structure consisting of just one tie bar linked to the supporting bars.

Park teaches (col. 4 line 22-34, figs. 3-5) the possibility of using at least one tie bar (122) that is attached to the chip pad (120).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the one tie bar structure taught by Park in the structure of Lim in order to simplify the manufacturing process.

Claim 8, so far in compliance of 35 U.S.C. 112 are rejected under 35 U.S.C. is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim and Park in view of admitted prior art.

Regarding claim 8, Lim teaches substantially the entire claimed structure of claim 1 above except explicitly stating the just one tie bar is arranged on the substrate's gating corner.

Admitted prior art teaches (fig. 1B) using the upper left tie bar 13a for providing a gate for injecting encapsulation.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to situate the one tie bar structure taught by Lim and Park in the substrate gating area in order to simplify the manufacturing process.

#### ***Response to Arguments***

5. Applicant's arguments filed on 7/3/2003 have been fully considered but they are not persuasive. Applicant argues that Lim and Park whether alone and taken in combination fail to suggest one or two tie bars for linking to a frame so as allow thermal expansion of the substrate toward corners of the substrate not having the tie bars. Furthermore applicant argues Lim and Park do not teach tie bars, which temporarily link the substrate to the supporting bars. As discussed above since Lim's structure is the same as the claimed structure, the limitation to allow thermally-induced expansion of the substrate to be directed toward corners of the substrate free of the tie bars, and allow the substrate to be free of connection to the tie bars in a semiconductor package formed on the substrate is inherently taught by Lim.

Also the limitation to allow thermally-induced expansion of the substrate to be directed toward corners of the substrate free of the tie bars, and allow the substrate to be free of connection to the tie bars in a semiconductor package formed on the substrate is not given patentable weight because, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Also Lim teaches that the tie bars (530) are as used as a support when the chip is mounted on the frame (570) (col. 7, lines 21-26). Therefore Lim inherently teaches that the tie bars are temporary structures.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel Admassu Gebremariam whose telephone number is 703 305 1913. The examiner can normally be reached on 8:00am-4: 30pm.

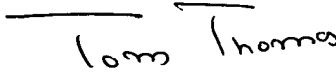
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 305-7646. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.



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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Samuel Admassu Gebremariam  
September 12, 2003

  
TOM THOMAS  
SUPERVISORY PATENT EXAMINER  
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